

WHAT IS CLAIMED IS:

1. A method for performing defect spatial signature analysis of a semiconductor process, comprising:
  - creating a defect database of wafers having defect spatial signatures, wherein the
  - 5 defect spatial signatures in the defect database are uncategorized data;
  - generating a recent defect spatial signature; and
  - determining if the recent defect spatial signature corresponds to at least one of the defect spatial signatures of the defect database.
- 10 2. The method of claim 1, wherein the defect database contains uncorrelated data.
3. The method of claim 2, wherein creating the defect database includes creating a relational database of defects.
- 15 4. The method of claim 3, further including storing coordinates of a process signature of a first defect and storing coordinates of a process signature of a second defect, wherein the coordinates of the process signatures of the first and second defects are in relation to each other.
- 20 5. The method of claim 3, further including creating a local density of defects for each wafer using one of a mathematical formulation or a stylus and a pad.
6. The method of claim 1, further including adding the recent defect spatial signature to the defect database.
- 25 7. The method of claim 1, further including adjusting a process if the recent defect spatial signature corresponds to at least one of the defect spatial signatures of the defect database.
- 30 8. The method of claim 1, wherein creating the defect database includes:
  - creating a relational database of defects; and

storing coordinates of a process signature of a first defect and storing coordinates of a process signature of a second defect, wherein the coordinates of the process signatures of the first and second defects are relative to each other.

- 5     9.     The method of claim 1, wherein the defect spatial signatures are from at least one of particle contamination, mechanical surface damage, wafer spinning processes, scratching, and polishing.

- 10     10.    A method for evaluating process anomalies in a semiconductor manufacturing process, comprising:  
          generating a database of process anomalies, wherein the process anomalies are uncorrelated;  
          inspecting a wafer having at least one process anomaly; and  
          determining if the at least one process anomaly corresponds to a process anomaly  
15    in the database of process anomalies.

- 20     11.    The method of claim 10, further including modifying the semiconductor manufacturing process if the at least one process anomaly of the inspected wafer corresponds to an anomaly in the database of process anomalies.

- 25     12.    The method of claim 10, wherein the anomalies are uncategorized.

- 30     13.    The method of claim 10, wherein inspecting the wafer includes creating a relational database of process anomalies and storing coordinates of process anomalies of a first defect and storing coordinates of process anomalies of a second defect.

- 35     14.    The method of claim 13, further including creating a local density of defects for each wafer using one of a mathematical formulation or a stylus and a pad.

- 40     15.    A method for determining the occurrence of an anomalous event, comprising:  
          storing a plurality of defect maps in a storage device;  
          creating a defect map of a recent anomalous event; and

determining if the defect map of the recent anomalous event corresponds to one of the plurality of defect maps in the storage device.

16. The method of claim 15, wherein the defect maps of the plurality of defect maps are uncorrelated and uncategorized.

17. The method of claim 15, further including modifying a process flow if the defect map of the recent anomalous event corresponds to one of the plurality of defect maps in the storage device.

18. The method of claim 15, wherein creating the defect map includes creating a relational database of defects.

19. The method of claim 18, further including storing coordinates of process signature of a first defect and storing coordinates of a process signature of a second defect, wherein the coordinates of the process signatures of the first and second defects are in relation to each other.

20. The method of claim 19, further including creating a local density of defects for each wafer using one of a mathematical formulation or a stylus and a pad.